

PATENT CLAIMS

1. A system for production and insertion of a real
5 dental bridge structure (23) in a real jaw bone
structure by means of a number of successive
function steps effected by equipment belonging to
two or more different parties, said equipment
10 comprising identification equipment (6), computer
appliance (7a, 7b), stereolithography equipment
(8), equipment for production of a physical
template (15), equipment for production of a
working model (16) in cooperation with an
15 articulator (18), equipment for production of the
dental bridge structure and insertion equipment
(25) for fitting the dental bridge structure on
the implant in the jaw bone structure, wherein the
computer appliance is designed to receive, and to
20 present on screen, first information transmitted
from the identification equipment and based on
detection of the jaw bone structure, wherein the
computer appliance is arranged with operating
elements by means of which it is possible to
25 visually enter modification information
concerning, on the one hand, a visual dental
bridge structure applied on the visual jaw bone
structure with associated teeth and dentine (gum),
and, on the other hand, orientations of the
30 implants in the visual dental bridge structure and
visual jaw bone structure, wherein the computer
appliance is arranged to produce a CAD file (13)
based on the first information and the
modification information and to transmit the CAD
file to the stereolithography machine, wherein the
35 stereolithography machine is arranged to issue
second information which can be processed in the
equipment for production of the physical template
with associated through-bores for sleeves arranged
to determine the recessed positions and

longitudinal directions for the implants, and wherein the physical template (15) on the one hand forms the basis for production of the working model and, on the other hand, serves as template in a hole formation defined with the sleeves and effected in the real jaw bone structure by means of the insertion equipment.

2. The system as claimed in patent claim 1, wherein the identification and computer appliances (6, 7a, 7b) are assigned to a first party (1) consisting of a party treating a patient, for example a surgeon, wherein the stereolithography machine is assigned to a second party (2), and wherein the equipment for production of template, working model and real dental bridge structure is assigned to a third party (3), for example a dental technician.

3. The system as claimed in patent claim 1 or 2, wherein the appliances assigned to the various parties can be connected to equipment of a higher order belonging to a fourth party (5) for information provision and/or handling or production of one or more of said functions or parts thereof.

4. The system as claimed in patent claim 1, 2 or 3, wherein the equipment for production of a working model (16) in cooperation with an articulator (18) is arranged to receive bite index information (22) from the identification equipment, the computer appliance and/or the equipment of higher order.

5. The system as claimed in any of patent claims 1-4, wherein the computer appliance (7a, 7b) and/or the equipment for production of a physical template (15) is/are arranged to indicate positions between the implants for fixing members, for example

fixing pins, which extend through the jaw bone structure for retention in or on patient (4) in the hole formation for implants.

- 5 6. An arrangement of a template produced by stereolithography (14) and by means of information from computer appliance (7a, 7b) and used for producing, on the one hand, a dental bridge structure that can be applied on an implant in the
10 jaw bone structure, and, on the other hand, for guiding of hole-forming means (drill) (25) for forming holes for the implants (7e), wherein the template (15) and the dental bridge structure (23) are provided with through-holes, and wherein the
15 through-holes are provided with sleeves by means of which the degrees of recessing of the implants and orientations in the implants can be determined.
- 20 7. The arrangement as claimed in patent claim 6, wherein the sleeves are arranged with first members (52a) which determine their degree of recessing in the template and which, in the recessed position, cooperate with corresponding
25 second members (54a) in the template.
8. The arrangement as claimed in patent claim 7, wherein the first members (52a) consist of outwardly projecting flanges and the second
30 members (54a) consist of stop surfaces.
9. The arrangement as claimed in patent claim 6, wherein the sleeves are arranged with resilient members (56b) which determine their degree of
35 recessing in the template and are designed to be able to be snapped into an internal recess (57a) in the final position of the sleeves.
10. The arrangement as claimed in patent claim 9,

wherein the resilient members (56b) are arranged to emit a click sound when the respective sleeve reaches its final position in the template.

- 5 11. The arrangement as claimed in any of patent claims 6-10, wherein the respective sleeve (62) can be anchored or locked by means of cement (52b).
- 10 12. The arrangement as claimed in any of patent claims 6-11, wherein first sleeves (52) are arranged for guiding the drill and implant or determining directions in which the drill(s) will operate in the respective implants, and second sleeves (51) for anchoring members or pins which are designed to extend horizontally through the jaw bone.
- 15 13. The arrangement as claimed in any of patent claims 6-12, wherein the template (15) is arranged to reproduce or comprise a material or part which corresponds to the dentine or gum replacement over those parts which extend over the jaw bone, in which the dental bridge is intended to extend.
- 20 14. The arrangement as claimed in any of patent claims 6-13, wherein the template is made of plastic material with a low coefficient of creep.
- 25 15. The arrangement as claimed in any of patent claims 6-14, wherein the template has a configuration which precisely or clearly fixes the position of the template on the jaw bone (58, 59) in order to permit hole formations, for the implants, which very accurately match the hole formations in the produced dental bridge (23), and the accuracy can be 0.1-0.2 mm.
- 30 16. The arrangement as claimed in any of patent claims 6-15, wherein the finished dental bridge (23) is designed to cooperate with teeth (44) in the
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opposite jaw bone with the aid of bite index added to the template and dental bridge.

17. The arrangement as claimed in any of patent claims
5 13-16, wherein said material or part of the
template which corresponds to the dentine or gum
replacement is designed to reduce the template
production time in a stereolithography machine
(8), inter alia, by 30-50% compared to the case
10 where the working model is replaced in the correct
relation to the bone part.